

8-6: Combinations

Warm-up: 1. List all permutations of 2 letters taken from the 5 letters: P, O, W, E, and R.

2. Group the permutations found in the answer above so that those permutations that use the same letters, such as OW and WO, are in the same group. How many groups are there?

Combination:

Example 1: Twenty distinct points are chosen on a circle.

a. How many segments are there with these points as endpoints?

b. How many triangles are there with these points as vertices?

c. How many quadrilaterals are there with these as points?

Example 2: Determine whether the following would be a permutation or a combination, and then solve the problem.

a. You have six colors to choose from and you wish to choose three for a flag. How many choices of colors are possible?

b. A flag with three vertical stripes of three different colors can use any one of six colors. How many flags are possible?

Example 3: At a restaurant, you can order pizza with any of 9 different toppings. How many different pizzas are possible with exactly 3 of these toppings?

Example 4: Six students from our class are randomly chosen to go on a field trip to Six Flags America. What is the probability that Jesse, Shelby, and Dalton get chosen to go?

Homework:

**"FIRST SAY TO YOURSELF WHAT YOU WOULD BE; AND THEN
DO WHAT YOU HAVE TO DO." - EPICTETUS**